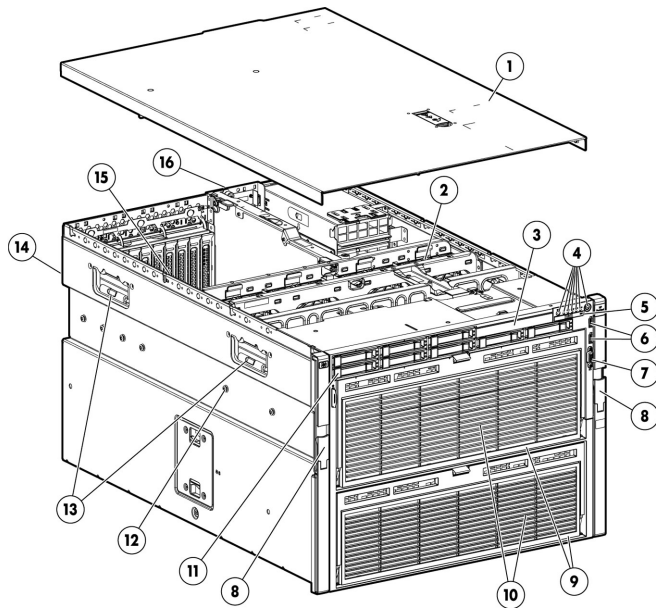


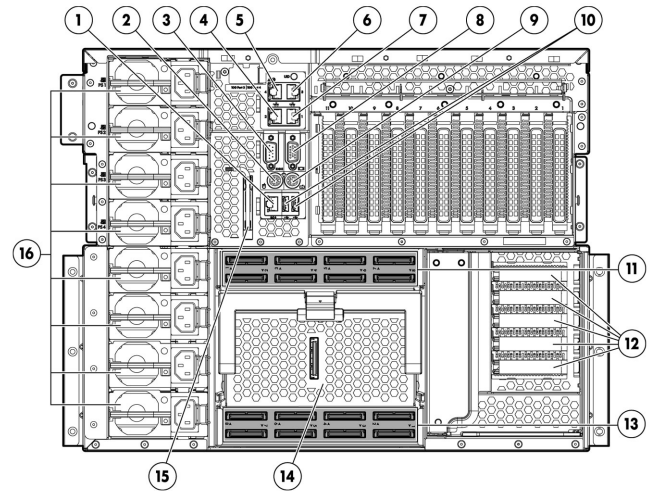
### Overview

HP ProLiant DL980 G7 with HP PREMA Architecture is an eight socket server built to handle the largest x86 enterprise environments with confidence. The DL980 G7 blends industry standard economies with advanced mission critical capabilities to deliver balanced scaling, self healing resiliency and breakthrough efficiencies needed in essential enterprise compute environments. Whether housing a single very large data intensive workload, or many consolidated or virtualized workloads to improve resource utilization, the DL980 G7 featuring PREMA Architecture with Smart CPU caching and a redundant system fabric, is designed to reduce bottlenecks, improve throughput and performance, as well as deliver enhanced reliability not previously available in an x86 environment.



#### Front View:

1. Quick removal access panel
2. 8 hot plug redundant fans standard on all models, upper four fan positions shown, lower four not shown
3. DVD drive bay
4. Front panel LED display and Power button
5. Slide-out System Insight Display
6. Two front accessible USB 2.0 ports
7. One front video port
8. Quick release lever for fast server access
9. Upper and lower front accessible processor and memory drawer
10. Support for up to eight 8-core Intel Xeon processors (4 processors in upper and 4 processors in the lower drawer)
11. Support for up to 8 small form factor (SFF) SAS drives
12. Universal tool-less "Snap In" Sliding Rail Solution
13. Server lifting handles
14. 8U rack form factor
15. Up to 11 full height/full length slots supported
16. Hot Plug Redundant Power Supplies (4 or 8 depending on the model)



#### Rear View:

1. Integrated Lights-Out 3 port
2. Mouse port
3. Serial port
4. Gigabit NIC port
5. Gigabit NIC port
6. Gigabit NIC port
7. Gigabit NIC port
8. Video port
9. Keyboard port
10. Two USB ports
11. Upper XNC ports
12. Up to 5 low profile slots supported
13. Lower XNC ports
14. XNC module
15. Service tool
16. Power supplies (4 or 8 depending on the model)



## Standard Features

**NOTE:** For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

### Processor

Four or eight of the following processors depending on model

#### Eight-Core Processors

Intel Xeon® X7560 Processor (2.26GHz, 24MB cache, 130W)

Intel Xeon® X6550 Processor (2.00GHz, 18MB cache, 130W)

#### Six-Core Processors

Intel Xeon® E6540 Processor (2.00GHz, 18MB cache, 105W)

#### Four-Core Processors

Intel Xeon® E7520 Processor (1.86GHz, 18MB cache, 95W)

**NOTE:** New Intel Microarchitecture with Intel Virtualization Technology FlexMigration.

### Cache Memory

One of the following depending on Model

24MB (1 x 12MB) Level 3 cache

**NOTE:** For X7560 Processor only.

18MB (1 x 4MB) Level 3 cache

### Chipset

Industry Standard Intel® 7500 Chipset

Hewlett-Packard DL980 G7 Node Controller

**NOTE:** Up to three Industry Standard Intel® 7500 Chipsets with six high-speed interconnects up to 6.4GT/s.

**NOTE:** For more information regarding Intel chipsets, please see the following URL:

<http://www.intel.com/products/server/chipsets/>

### Upgradeability

Upgradeable to eight processors

### Memory Protection

Advanced ECC

Mirrored Memory

Online Spare Memory Rank

### Memory

One of the following depending on Model

Type PC3-10600R Fully Buffered DIMMs (DDR3)

Standard (E6540 Model) 128GB (16 x 8GB)

Standard (X6550 Model) 256GB (32 x 8GB)

Maximum 2TB (128 x 16GB)

### Network Controller

HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter

**NOTE:** Optional Dual Port 10GbE upgrade (replaces two 1G ports).



## Standard Features

### Expansion Slots

**NOTE:** Up to 16 slots supported: 11 full length/full height and 5 low profile slots. Base I/O backplane configuration: 2 PCI-E 2.0 x8, 3 PCI-E x4. Optional full height/full length I/O backplanes - (choose only one): 2 PCI-E 2.0 x16, 1 PCI-E 2.0 x4, 2 PCI-X OR 4 PCI-E 2.0 x8, 1 PCI-E 2.0 x4, 1 PCI-E 1.1 x4. Optional low profile I/O backplane: 4 PCI-E 2.0 x8, 1 PCI-E 2.0 x4

Expansion Slots with No Option Card	Expansion Slot #	Technology	Width	Connector Width*	Bus Number(*)(**)	Form Factor	Notes
	1	N/A	N/A	N/A	N/A	N/A	N/A
	2	N/A	N/A	N/A	N/A	N/A	N/A
	3	N/A	N/A	N/A	N/A	N/A	N/A
	4	N/A	N/A	N/A	N/A	N/A	N/A
	5	N/A	N/A	N/A	N/A	N/A	N/A
	6	N/A	N/A	N/A	N/A	N/A	N/A
	7	PCI Express Gen2	x4	x8	0x05	FH/FL	
	8	PCI Express Gen2	x4	x8	0x08	FH/FL	
	9	PCI Express Gen2	x8	x16	0x0B	FH/FL	
	10	PCI Express Gen2	x4	x8	0x0E	FH/FL	
	11	PCI Express Gen2	x8	x16	0x11	FH/FL	

\* Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.

\*\* Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

FL= Full length; FH = Full height; LP = low-profile.

Expansion Slots with Combination PCI-X, PCI-e and 300W GPU I/O Expander	Expansion Slot #	Technology	Width	Connector Width*	Bus Number(*)(**)	Form Factor	Notes
	1	PCI-X	64-bit	N/A	0x72 (Device 1)	FH/FL	100MHz
	2	PCI-X	64-bit	N/A	0x72 (Device 2)	FH/FL	100MHz
	3	PCI Express Gen2	x16	x16	0x76	FH/FL	
	4	PCI Express Gen2	x4	x8	0x79	FH/FL	
	5	N/A	N/A	N/A	N/A	N/A	N/A
	6	PCI Express Gen2	x16	x16	0x84	FH/FL	



## Standard Features

	7	PCI Express Gen2	x4	x8	0x05	FH/FL	
	8	PCI Express Gen2	x4	x8	0x08	FH/FL	
	9	PCI Express Gen2	x8	x16	0x0B	FH/FL	
	10	PCI Express Gen2	x4	x8	0x0E	FH/FL	
	11	PCI Express Gen2	x8	x16	0x11	FH/FL	

\* Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.

\*\* Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

FL= Full length; FH = Full height; LP = low-profile.

Expansion Slots with Standard PCI-e option I/O Expander	Expansion Slot #	Technology	Width	Connector Width*	Bus Number(*)(**)	Form Factor	Notes
	1	PCI Express Gen1	x4	x8	0x71	FH/FL	
	2	PCI Express Gen2	x8	x16	0x74	FH/FL	
	3	PCI Express Gen2	x8	x16	0x77	FH/FL	
	4	PCI Express Gen2	x4	x8	0x7A	FH/FL	
	5	PCI Express Gen2	x8	x16	0x84	FH/FL	
	6	PCI Express Gen2	x8	x16	0x87	FH/FL	
	7	PCI Express Gen2	x4	x8	0x05	FH/FL	
	8	PCI Express Gen2	x4	x8	0x08	FH/FL	
	9	PCI Express Gen2	x8	x16	0x0B	FH/FL	
	10	PCI Express Gen2	x4	x8	0x0E	FH/FL	
	11	PCI Express Gen2	x8	x16	0x11	FH/FL	

\* Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.

\*\* Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

FL= Full length; FH = Full height; LP = low-profile.



## Standard Features

Expansion Slots with Low Profile I/O expander (PCI-e option)	Expansion Slot #	Technology	Width	Connector Width*	Bus Number(*)(**)	Form Factor	Notes
	7	PCI Express Gen2	x4	x8	0x05	FH/FL	
	8	PCI Express Gen2	x4	x8	0x08	FH/FL	
	9	PCI Express Gen2	x8	x16	0x0B	FH/FL	
	10	PCI Express Gen2	x4	x8	0x0E	FH/FL	
	11	PCI Express Gen2	x8	x16	0x11	FH/FL	
	12	PCI Express Gen2	x8	x16	0x71	LP	
	13	PCI Express Gen2	x8	x16	0x74	LP	
	14	PCI Express Gen2	x4	x8	0x77	LP	
	15	PCI Express Gen2	x8	x16	0x7A	LP	
	16	PCI Express Gen2	x8	x16	0x84	LP	

\* Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.

\*\* Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

FL= Full length; FH = Full height; LP = low-profile.

Expansion Slots with Combination PCI-X, PCI-e and 300W GPU and Low Profile PCI-e I/O Expanders	Expansion Slot #	Technology	Width	Connector Width*	Bus Number(*)(**)	Form Factor	Notes
	1	PCI-X	64-bit	N/A	0x52 (Device 1)	FH/FL	100MHz
	2	PCI-X	64-bit	N/A	0x52 (Device 2)	FH/FL	100MHz
	3	PCI Express Gen2	x16	x16	0x56	FH/FL	
	4	PCI Express Gen2	x4	x8	0x59	FH/FL	
	5	N/A	N/A	N/A	N/A	N/A	N/A
	6	PCI Express Gen2	x16	x16	0x5C	FH/FL	



## Standard Features

	7	PCI Express Gen2	x4	x8	0x05	FH/FL	
	8	PCI Express Gen2	x4	x8	0x08	FH/FL	
	9	PCI Express Gen2	x8	x16	0x0B	FH/FL	
	10	PCI Express Gen2	x4	x8	0x0E	FH/FL	
	11	PCI Express Gen2	x8	x16	0x11	FH/FL	
	12	PCI Express Gen2	x8	x16	0xA1	LP	
	13	PCI Express Gen2	x8	x16	0xA4	LP	
	14	PCI Express Gen2	x4	x8	0xA7	LP	
	15	PCI Express Gen2	x8	x16	0xAA	LP	
	16	PCI Express Gen2	x8	x16	0xAD	LP	

\* Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.

\*\* Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

FL= Full length; FH = Full height; LP = low-profile.

Expansion Slots with Standard PCI-e and Low Profile PCI-e option I/O Expanders	Expansion Slot #	Technology	Width	Connector Width*	Bus Number(**)	Form Factor
	1	PCI Express Gen1	x4	x8	0x51	FH/FL
	2	PCI Express Gen2	x8	x16	0x54	FH/FL
	3	PCI Express Gen2	x8	x16	0x57	FH/FL
	4	PCI Express Gen2	x4	x8	0x5A	FH/FL
	5	PCI Express Gen2	x8	x16	0x5D	FH/FL
	6	PCI Express Gen2	x8	x16	0x60	FH/FL
	7	PCI Express Gen2	x4	x8	0x05	FH/FL



### Standard Features

	8	PCI Express Gen2	x4	x8	0x08	FH/FL
	9	PCI Express Gen2	x8	x16	0x0B	FH/FL
	10	PCI Express Gen2	x4	x8	0x0E	FH/FL
	11	PCI Express Gen2	x8	x16	0x11	FH/FL
	12	PCI Express Gen2	x8	x16	0xA1	LP
	13	PCI Express Gen2	x8	x16	0xA4	LP
	14	PCI Express Gen2	x4	x8	0xA7	LP
	15	PCI Express Gen2	x8	x16	0xAA	LP
	16	PCI Express Gen2	x8	x16	0xAD	LP

\* Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.

\*\* Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

FL= Full length; FH = Full height; LP = low-profile.

### Storage Controller

HP Smart Array P410i controller with optional FBWC

The Flash Backed Write Cache (FBWC) increases cache data retention capabilities from two days of existing battery backed write cache (BBWC) to infinite data retention.

- Standard on 4P Models, optional on factory integrated models
- Transportable data protection
- Increases overall controller performance

### Internal Storage Devices

Diskette Drive	None
Optical Drive	Slimline DVD-RW Drive standard
Hard Drives	None ship standard
Hard Disk Drive Backplane	Internal SAS backplane supports up to eight SFF hard disk drives

### Maximum Internal Storage

Hot Plug SFF SAS	2.4TB	8 x 300GB
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### Standard Features

Interfaces	Serial	1
	Video	1 front; 1 rear
	SD slot	1
	Network RJ-45	4
	iLO 3 Remote Management	1
	Keyboard	1
	Pointing Device (Mouse)	1
	USB 2.0 Ports	6 total: 2 front (video); 2 rear (video, NIC); 2 internal
<b>NOTE:</b> Please see the following URL for additional information regarding USB support: <a href="http://h18004.www1.hp.com/products/servers/platforms/usb-support.html">http://h18004.www1.hp.com/products/servers/platforms/usb-support.html</a>		

Industry Standard Compliance	ACPI 2.0. Compliant
	PCIe 2.0 Compliant
	PXE Support
	WOL Support
	Physical Address Extension (PAE) Support
	Microsoft® Logo certifications
	USB 2.0 Support

Server Power Cords	<b>NOTE:</b> If customers require a local power cord, they can check the power cord matrix for the appropriate sku. Please see the following power cord matrix for details: <a href="http://www.hp.com/go/powercordmatrix">http://www.hp.com/go/powercordmatrix</a>
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Power Supply	<b>NOTE:</b> Rear accessible Hot Plug Power Supplies with option for redundancy (Redundant power supplies are standard on some models).
	E6540 4P Model: (4) 1200W Common Slot Platinum Power Supplies (220VAC only)
	X6550 4P Model: (8) 1200W Common Slot Platinum Power Supplies (220VAC only)
<b>NOTE:</b> The HP ProLiant DL980 G7 requires four power supplies to operate. With four power supplies there is no power redundancy. Eight power supplies are required for power redundancy. The level of redundancy will be reported during the system power on.	

System Fans	8 Hot plug, redundant fans ship standard
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Required Cabling	For required cabling information, refer to the HP Web site at: <a href="http://www.hp.com/servers/dl980g7">www.hp.com/servers/dl980g7</a>
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### Standard Features

#### Operating Systems and Virtualization Software Support for ProLiant Servers

Microsoft Windows Server  
Microsoft Windows Server Hyper V  
Red Hat Enterprise Linux (RHEL)  
SUSE Linux Enterprise Server (SLES)  
Oracle Enterprise Linux (OEL)  
Oracle Solaris  
VMware

**NOTE:** For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: <http://www.hp.com/go/ossupport> and our driver download page [www.hp.com/support/DL980G7](http://www.hp.com/support/DL980G7).

#### Graphics

Integrated ATI ES1000 with 32MB embedded video SDRAM  
Max Resolution 1280 x 1024 x 16M color

#### Form Factor

Rack (8U = 14 inches)  
Ships with Quick Deploy Sliding Rail System, an ambidextrous cable management arm and quick release levers for fast and easy serviceability and in-rack tool-less access to major components.

#### HP Insight management software

##### HP Insight Foundation

Managing the growing number of servers can be complex and expensive for your organization. IT managers need to address changing business needs with tools that meet the challenges of managing today's complex Datacenters.

HP provides management solutions that are designed to simplify a server's installation, configuration and maintenance throughout the entire server lifecycle. This provides the customer with higher levels of operational efficiency and highly reliable systems: [www.hp.com/go/foundation](http://www.hp.com/go/foundation).

The foundation pack includes:

- HP SmartStart
- HP Management
- HP ProLiant Firmware Maintenance

SmartStart version supported (minimum): SmartStart 8.5  
<http://www.hp.com/servers/smartstart>

##### HP Integrated Lights-Out (iLO)

HP Integrated Lights-Out (iLO) simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration of ProLiant ML, DL, and BL servers. HP iLO functions without additional software and can be accessed from any location via a web browser. HP iLO works hand-in-hand with HP Systems Insight Manager, Insight Control suites, and Insight Dynamics for ProLiant, helping customers unleash the value of the ProLiant platform and deliver the highest possible quality of IT service. HP iLO can be purchased stand-alone and it also is included with the purchase of HP Insight Control. For more information, visit: [www.hp.com/go/iLO](http://www.hp.com/go/iLO)



### Standard Features

Intelligent Manageability	HP Systems Insight Manager
	SmartStart
	Redundant ROM
	Remote Flash ROM
	Management Agents
	Integrated Management Log (IML)
	Automatic Server Recovery-2 (ASR-2)
	ROM-Based Setup Utility (RBSU)
	Dynamic Sector Repairing (with Smart Array Controllers)
	Drive Parameter Tracking (with Smart Array Controllers)
	Pre-Failure Warranty (covers processors, SAS hard drives and memory)
	Redundant/adaptive load balancing NIC Support
	Hot Spare Boot
<b>NOTE:</b> Upon the event of a failed processor in a multi-processing environment, the system will automatically reboot and use the remaining good processor(s).	

Security	Power-on password
	Keyboard password
	External USB port enable/disable
	Network Server Mode
	Serial interface control
	Administrator's password
	Removable CD-ROM or DVD drive

Warranty	<p>This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.</p>
	<p><b>NOTE:</b> Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at: <a href="http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html">http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html</a></p>



### Optional Features

#### HP Insight management software

##### HP Insight Control

HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console.

Two versions of Insight Control are available, to serve environments requiring either a Linux-based or a Windows-based central management server: HP Insight Control for Linux, and HP Insight Control. See [www.hp.com/go/insightcontrol](http://www.hp.com/go/insightcontrol)

HP Insight Control includes one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit: <http://www.hp.com/services/insight>.

##### HP Insight Dynamics for ProLiant

HP Insight Dynamics for ProLiant, a product option, is an integrated command center that enables IT Staff personnel to continuously analyze and optimize a converged infrastructure, while automating and reducing the cost of common data center tasks by as much as 40 percent. As a powerfully integrated by design toolkit to accelerate complex technology projects and simplify daily operations that ultimately enable IT Staff personnel to dynamically keep pace with the organizations changing business requirements. It enables them to plan capacity and power continuously, balance across physical and virtual resources, and ensure cost-effective high availability. It also enables IT organizations to provision infrastructure consistently and automatically from pools of shared resources using a self-service portal. Resources provisioned can range from a single virtual machine to complex multi-tier environments and their associated physical and virtual resource requirements. In addition to the previous functional benefits, it also provides a cost-effective disaster recovery for physical and virtual environments that works with HP StorageWorks Continuous Access software for both the Enterprise Virtual Array and the XP storage array allowing application environments to be reactivated in minutes with the touch of a button to a remote location.

**NOTE:** For more information, visit: <http://www.hp.com/go/insightdynamics>



### Optional Features

#### Factory Express Portfolio for Servers and Storage

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services for your specific server model please contact your sales representative or go to: <http://www.hp.com/go/factory-express>.

#### HP Enterprise Configurator

The HP eConfigure-Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance. <http://www.hp.com/products/configurator>



### Service and Support

#### Service and Support

HP Care Pack services provide total care and support expertise with committed response designed to meet your IT and business needs.

HP Care Pack services include coverage for the HP branded hardware options qualified for the server and purchased at the same time or afterward that are internal to the enclosure. This also includes the 22" and smaller external monitors and tower UPS options up to 3kVA. These items will be covered at the same service level and for the same coverage period as the server. Coverage of UPS Battery is not included, and standard warranty terms & conditions apply. For servers or storage systems installed within a rack, service also covers all HP qualified rack options installed within the same rack.

To fully capitalizing on your HP ProLiant servers' capabilities requires a service partner who thoroughly understands your server technology and systems environment. HP Services, an industry leader in provision of multi vender support solutions, provides a range of support services designed to meet the varying needs of your business. Whether an SMB, or large global corporation, HP has a ProLiant server support offer to help you speedily deploy and maximize system uptime.

**Recommended Service** - simplify ProLiant solution implementation, maintenance, and management.

- Support: 3-Year 4-Hour response 24x7 Same Business Day Coverage only
- Deployment Service: Installation and Start up only

**Enhanced Service** - optimize service level to increase IT performance and availability.

- Support: 3-Year Support Plus 24 only

Refer to the information on "Installation & Start-Up" for service on ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet; to be delivered on a scheduled basis 8am-5pm, M-F, excluding HP holidays.

**NOTE:** For a complete listing of service offerings and information visit:

<http://www.hp.com/services/proliantservices>

<http://www.hp.com/go/proliant/carepack>



### Pre-configured Models

**NOTE:** For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

**NOTE:** Pre-configured models ship with the configurations below. Options can be selected from the Core or Additional options section of this QuickSpecs.

**NOTE:** HP does not allow factory integration of options into pre-configured models. Any additional options purchased will be shipped separately.

**NOTE:** If you desire a custom configuration please see "Configuration Information - Factory Integrated Models" section of this QuickSpecs.

HP DL980G7 E6540 6 core 2.0GHz 4p Svr AM445A	Processor(s)	(4) Intel Xeon® E6540 Processor (2.00GHz, 18MB cache, 105W)
	Cache Memory	18MB (1 x 18MB) Level 3 cache
	Memory	128GB (16 x 8GB) PC3-10600R Fully Buffered DIMMs (DDR3)
	Network Controller	HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter
	Storage Controller	HP Smart Array P410i Controller with 512MB FBWC
	Hard Drives	None ship standard
	Internal Storage	2.4TB max (with optional 300GB SAS hard drives)
	Optical Drive	Slimline DVD-RW Drive standard
	Power Supply	Four 1200W Common Slot Platinum power supplies standard Optional upgrade to eight power supplies for redundancy
	Fans	8 Hot plug, redundant fans ship standard
	Integrated Lights-Out	HP Integrated Lights-Out 3 (iLO 3) management processor (integrated on system board)
	Insight Control	HP Insight Control No Media single server license, including 1 year of 24x7 Technical Support
	Form Factor	Rack 8U
	Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response

HP DL980G7 X6550 8 core 2.0GHz 4p Svr AM444A	Processor(s)	(4) Intel Xeon® X6550 Processor (2.00GHz, 18MB cache, 130W)
	Cache Memory	18MB (1 x 18MB) Level 3 cache
	Memory	256GB (32 x 8GB) PC3-10600R Fully Buffered DIMMs (DDR3)
	Network Controller	HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter
	Storage Controller	HP Smart Array P410i Controller with 512MB FBWC
	Hard Drives	None ship standard
	Internal Storage	2.4TB max (with optional 300GB SAS hard drives)
	Optical Drive	Slimline DVD-RW Drive standard
	Power Supply	Eight 1200W Common Slot Platinum power supplies standard (fifth - eighth power supply are for redundancy)
	Fans	8 Hot plug, redundant fans ship standard
	Integrated Lights-Out	HP Integrated Lights-Out 3 (iLO 3) management processor (integrated on system board)
	Insight Control	HP Insight Control No Media single server license, including 1 year of 24x7 Technical Support
	Form Factor	Rack 8U



### *Pre-configured Models*

#### **Warranty**

Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.



### Configuration Information - Factory Integrated Models

**NOTE:** This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.

**NOTE:** Configure-to-order (CTO) servers must start with a CTO Chassis.

**NOTE:** FIO indicates that this option is only available as a factory installable option.

### Step 1: Base Configuration

HP Models	HP ProLiant DL980 CTO system	AM426A
	<b>Factory Integrated Model ships with:</b>	
	HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter	
	Eight HP Memory Boards	
	Five PCI-express slots	
	HP Smart Array P410i Controller	
	Four 1200W Common Slot Platinum hot-plug power supplies	
	Eight redundant hot plug fans	
	SFF SAS drive cage	
	HP Integrated Lights-Out 3 (iLO 3) management processor (integrated on system board)	
	Rack form factor, 8U	

### Step 2: Choose Required Options (only one of the following from each list unless otherwise noted)

HP Processors	<b>NOTE:</b> Each processor kit contains four processors.	
	<b>NOTE:</b> If eight processors are desired select one xxxxx-L21 and one xxxxx-B21. Additionally one HP DL980 CPU Assembly (P/N: AM442A) will be required.	
	<b>Eight-Core Processors</b>	
	HP DL980 G7 Intel® Xeon® E7560 (2.27GHz/8-core/24MB/130W) FIO 4-processor Kit	597871-L21
	<b>NOTE:</b> QPI speed is 6.4GT/s	
	HP DL980 G7 Intel® Xeon® E6550 (2GHz/8-core/18MB/130W) FIO 4-processor Kit	597870-L21
	<b>NOTE:</b> QPI speed is 6.4GT/s	
	<b>Six-Core Processors</b>	
	HP DL980 G7 Intel® Xeon® E6540 (2GHz/6-core/18MB/105W) FIO 4-processor Kit	597869-L21
	<b>NOTE:</b> QPI speed is 6.4GT/s	
	<b>Four-Core Processors</b>	
	HP DL980 G7 Intel® Xeon® E7520 (1.86GHz/4-core/18MB/95W)) FIO 4-processor Kit	597868-L21
	<b>NOTE:</b> QPI speed is 4.8GT/s	
HP Memory	<b>Registered DIMMs (RDIMMs)</b>	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21





### Configuration Information - Factory Integrated Models

HP Optical Drives	HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
	HP DL580G7 Memory Board	588141-B21
	HP Slim SATA DVD-ROM Optical Drive	481041-B21
	HP Slim SATA DVD RW Optical Drive	481043-B21

### Step 3: Choose Additional Factory Integratable Options (only one of the following from each list unless otherwise noted)

HP Insight Software	HP Insight Control suite, No Media 1-Server License Factory-Integratable Option (FIO) including 1 year of 24x7 Technical Support and Updates	582765-B21
	HP Insight Control for Linux, No Media 1-Server License Factory-Integratable Option (FIO) including 1 year of 24x7 Technical Support and Updates	TC203A

### Step 4: Choose Additional Options for Factory Integration

**NOTE:** For additional options, please refer to the "Core Options" and "Additional Options" section below.



### Core Options

**NOTE:** Some options may not be integrated at the factory. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

HP Unique Options	PCI Express I/O Exp. Kit	588137-B21
	<b>NOTE:</b> Adds four PCI-E 2.0 x8, one PCI-E 2.0 x4 and one PCI-E 1.1 x4.	
	PCI-X / PCI Express I/O Exp. Kit	588139-B21
	<b>NOTE:</b> Adds two PCI-E 2.0 x16, one PCI-E 2.0 x4 and two PCI-X.	
	<b>NOTE:</b> Suggested Slot placement:	
	1. Slot 3 PCIe2 x 16 (16,8,4,2,1)	
	2. Slot 6 PCIe2 x 16 (16,8,4,2,1)	
	3. Slot 9 PCIe2 x 16 (8,4,2,1)*	
	4. Slot 11 PCIe2 x 16 (8,4,2,1)*	
	Slot 9 and 11 are physically a x16 slot but will operate electrically at x8	
	Low Profile PCI Express I/O Expansion Kit	AM434A
	<b>NOTE:</b> Adds four PCI-E 2.0 x8, one PCI-E 2.0 x4.	
	HP DL980 CPU Assembly	AM442A
	<b>NOTE:</b> Required for 8p configurations only.	

### HP Processors

**NOTE:** Each processor kit contains four processors. 8P configurations require one HP DL980 CPU Assembly (P/N: AM442A)

#### Eight-Core Processors

HP DL980 G7 Intel® Xeon® E7560 (2.27GHz/8-core/24MB/130W) 4-processor Kit 597871-B21  
**NOTE:** QPI speed is 6.4GT/s

HP DL980 G7 Intel® Xeon® E6550 (2GHz/8-core/18MB/130W) 4-processor Kit 597870-B21  
**NOTE:** QPI speed is 6.4GT/s

#### Six-Core Processors

HP DL980 G7 Intel® Xeon® E6540 (2GHz/6-core/18MB/105W) 4-processor Kit 597869-B21  
**NOTE:** QPI speed is 6.4GT/s

#### Four-Core Processors

HP DL980 G7 Intel® Xeon® E7520 (1.86GHz/4-core/18MB/95W) 4-processor Kit 597868-B21  
**NOTE:** QPI speed is 4.8GT/s



### Core Options

#### HP Memory

##### Registered DIMMs (RDIMMs)

HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit 500656-B21

HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit 593339-B21

HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit 500662-B21

HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit 500666-B21

HP DL580G7 Memory Board 588141-B21

**NOTE:** Eight memory boards come standard in all pre-configured and CTO models. A maximum of 16 memory boards are supported in the server (requires installation of the HP DL980 CPU Assembly P/N: AM442A).

#### HP Optical Drives

HP Slim SATA DVD-ROM Optical Drive 481041-B21

HP Slim SATA DVD RW Optical Drive 481043-B21

#### HP Hard Drives

**NOTE:** The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

**NOTE:** Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

##### SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives

HP 300GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive 507127-B21

HP 146GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive 512547-B21

HP 72GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive 512545-B21



## Core Options

### HP Networking

#### Gigabit Ethernet Adapters

HP NC112T PCI Express Gigabit Server Adapter	503746-B21
HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
<b>NOTE:</b> There is a maximum of five NC364T PCI Express Quad Port Gigabit Server Adapter NICs allowed in this server.	
HP NC375T PCI Express Quad Port Gigabit Server Adapter	538696-B21
HP NC365T Ethernet Quad Port Server Adapter	593722-B21
HP NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter	458492-B21

#### 10 Gigabit Ethernet Adapters

**NOTE:** No more than two 10GbE I/O devices are supported in a single ProLiant server.

**NOTE:** A minimum of two Gigabytes (2 GB) of server memory is required per each adapter.

**NOTE:** Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.

HP NC522SFP Dual Port 10GbE Server Adapter	468332-B21
HP NC524SFP Dual Port 10GbE Server Adapter	489892-B21
HP NC550SFP Dual Port 10GbE Server Adapter	581201-B21

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information: [www.hp.com/go/ProLiantNICs](http://www.hp.com/go/ProLiantNICs)

#### Smart-mini DIMM Module

HP 512MB DDR2 244P Mini DIMM Module Kit	519808-B21
<b>NOTE:</b> By plugging the Smart-mini DIMM Module to the HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter, TCP/IP Offload Engine (TOE) for Windows is enabled/supported.	

### HP InfiniBand

HP IB 4X DDR CX-2 PCI-e G2 Dual Port HCA	592521-B21
HP IB 4X QDR CX-2 PCI-e G2 Dual Port HCA	592520-B21

### HP I/O Expansion Options

PCI-X / PCI Express I/O Exp. Kit	588139-B21
<b>NOTE:</b> Adds two PCI-E 2.0 x16, one PCI-E 2.0 x4 and two PCI-X.	
<b>NOTE:</b> Suggested Slot placement:	
<ol style="list-style-type: none"> <li>Slot 3 PCIe2 x 16 (16,8,4,2,1)</li> <li>Slot 6 PCIe2 x 16 (16,8,4,2,1)</li> <li>Slot 9 PCIe2 x 16 (8,4,2,1)*</li> <li>Slot 11 PCIe2 x 16 (8,4,2,1)*</li> </ol> <p>Slot 9 and 11 are physically a x16 slot but will operate electrically at x8</p>	
PCI-X / PCI Express I/O Exp. Kit	588137-B21
<b>NOTE:</b> Adds two PCI-E 2.0 x16, one PCI-E 2.0 x4 and two PCI-X.	
Low Profile PCI Express I/O Expansion Kit	AM434A
<b>NOTE:</b> Adds four PCI-E 2.0 x8, one PCI-E 2.0 x4.	



## Core Options

### HP Power Supplies

HP 1200W Common Slot High Efficiency Power Supply Kit

578322-B21



### Additional Options

**NOTE:** Some options may not be integrated at the factory. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

<b>HP Insight Software</b>	<b>HP Insight Control</b>	452148-B22
	HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License	
	HP Insight Control, No Media, Electronic License including 1 year of 24x7 Technical Support and Updates	T9074BAE
	HP Insight Control, Electronic License for bundling with ProLiant ML/DL server, including 1 year of 24x7 Technical Support and Updates	TC278AAE
	HP Insight Control, Tracking License for bundling with ProLiant ML/DL server, including 1 year of 24x7 Technical Support and Updates	TC275A
	HP Insight Software Media Kit	436222-B21
	<b>NOTE:</b> Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.	
	<b>NOTE:</b> Customer will receive a license entitlement certificate. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.	
	<b>NOTE:</b> Licenses ship without media. The HP Insight Control Media Kit can be ordered separately, or can be downloaded at: <a href="http://www.hp.com/go/insightupdates">http://www.hp.com/go/insightupdates</a> .	
	<b>NOTE:</b> For additional license options please see the Insight Control QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/12631_na/12631_na.html">http://h18000.www1.hp.com/products/quickspecs/12631_na/12631_na.html</a>	
	<b>HP Insight Control for Linux</b>	
	HP Insight Control for Linux, 1-server license, including one year of 24x7 Technical Support and Updates, Electronic	TC213AAE
	HP Insight Control for Linux, No Media, 1-Server license, including one year of 24x7 Technical Support and Updates	TC209A
	HP Insight Control for Linux, Media pack (DVD) - No licenses included	TC208A
	<b>NOTE:</b> Licenses ship without media. The Media Kit for Insight Control for Linux can be ordered separately, or can be downloaded at: <a href="http://www.hp.com/go/ic-linux">http://www.hp.com/go/ic-linux</a> (click on Download button).	
	<b>NOTE:</b> Electronic licenses can be used to purchase multiple licenses with a single activation key.	
	<b>NOTE:</b> Customer will receive a license entitlement certificate, which must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service.	
	<b>NOTE:</b> For additional License Kits, including electronic licensing options, please see the QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/13019_na/13019_na.html">http://h18000.www1.hp.com/products/quickspecs/13019_na/13019_na.html</a>	
	<b>HP Integrated Lights-Out Advanced (iLO Advanced)</b>	
	HP Integrated Lights-Out (iLO) Advanced for ProLiant Electronic License, including (1) year of 24x7 Technical Support and Updates	TA850AAE
	<b>NOTE:</b> This part number (P/N TA850AAE) can be purchased as a single license or as multiple licenses (no minimum) with a single activation key.	
	HP Integrated Lights-Out (iLO) Advanced for ProLiant (1) Server License/(1) Key, No Media, including (1) year of 24x7 Technical Support and Updates	512485-B21
	<b>NOTE:</b> This license allows 1 server to be deployed and managed via HP iLO	



### Additional Options

Advanced. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service.

**NOTE:** For additional license kits, including electronic delivery options, please see the QuickSpecs at:

[http://h18000.www1.hp.com/products/quickspecs/12362\\_na/12362\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12362_na/12362_na.html)

#### HP Insight Control server deployment

HP Insight Control server deployment Electronic License including 1 year 24x7 Technical Support and Updates T9082AAE

HP Insight Control server deployment, Single-Server License including 1 year of 24x7 Technical Support and Updates 452151-B21

**NOTE:** Licenses ship without media. The Insight Control Media Kit can be ordered separately, or can be downloaded at: <http://www.hp.com/go/insightupdates>.

**NOTE:** Electronic licenses can be used to purchase multiple licenses with a single activation key.

**NOTE:** Customer will receive a license entitlement certificate, which must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service.

**NOTE:** For additional license kits please see the Insight Control QuickSpecs at:

[http://h18004.www1.hp.com/products/quickspecs/12631\\_na/12631\\_na.html](http://h18004.www1.hp.com/products/quickspecs/12631_na/12631_na.html)

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HP Graphics Options	<p>HP DL580/DL585/DL980 G7 Power Cable Kit 631660-B21</p> <p><b>NOTE:</b> The HP ProLiant DL980 G7 can support up to 4 (225W) or 3 (300W) Graphic Cards and/or GPGPU Accelerator Options</p> <p><b>NOTE:</b> An option kit will be required per Graphic Card and/or GPGPU Accelerator Options.</p> <p><b>NOTE:</b> Depending on the number of GPGPUs required, customers will need to purchase the following I/O expansion boards: DL580G7 PCI-X / PCI Express I/O Exp. Kit: PN: 588139-B21 (Adds two PCI-E 2.0 x16, one PCI-E 2.0 x4 and two PCI-X).</p>	
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HP Security - TPM	<p>HP Trusted Platform Module Option Kit 488069-B21</p> <p><b>NOTE:</b> The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates and encryption keys. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline. For more information about TPM, including a white paper, go to: <a href="http://www.hp.com/go/TPM">www.hp.com/go/TPM</a>.</p> <p><b>NOTE:</b> ProLiant OS pre-installed units will come with the partition required for TPM deployment.</p> <p><b>NOTE:</b> The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.</p>	
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### HP Storage Controllers SAS Controllers



## Additional Options

### Smart Array P212 Controller

HP Smart Array P212/256 1-ports Int/1-ports Ext PCIe x8 SAS Controller 462834-B21

### Smart Array P411 Controller

HP Smart Array P411/256 2-ports Ext PCIe x8 SAS Controller 462830-B21

HP Smart Array P411/512 FBWC 2-ports Ext PCIe x8 SAS Controller 578229-B21

HP Smart Array P411/1G FBWC 2-ports Ext PCIe x8 SAS Controller 572531-B21

### Smart Array P812 Controller

HP Smart Array P812/1G FBWC 2-ports Int/2-ports Ext PCIe x8 SAS Controller 487204-B21

### Optional Upgrades

**NOTE:** Maximum of two battery or FBWC kits (for Smart Array Controllers) can be installed in upper full height/full length (FH/FL) I/O slot area. Maximum of one battery or FBWC kit (for Smart Array Controller) can be installed in lower low profile (LP) I/O slot area.

HP 650 mAh P-Series Battery 462969-B21

**NOTE:** Supported on HP Smart Array P212 Controller and HP Smart Array P411 Controller only.

HP 1GB Flash Backed Cache 534562-B21

HP 512MB Flash Backed Write Cache 534916-B21

HP Smart Array Advanced Pack including 1yr 24x7 Technical Support and Updates Single Server License 516471-B21

**NOTE:** This part number can be used to purchase a single license or to order multiple licenses with a single activation key. Customers will receive a license entitlement certificate via e-mail. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Include one year of 24x7 HP Software Technical Support Services.

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:

[http://h18000.www1.hp.com/products/quickspecs/13203\\_na/13203\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13203_na/13203_na.html)  
(Smart Array P212 Controller)

[http://h18000.www1.hp.com/products/quickspecs/13202\\_na/13202\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13202_na/13202_na.html)  
(Smart Array P411 Controller)

[http://h18000.www1.hp.com/products/quickspecs/13558\\_na/13558\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13558_na/13558_na.html)  
(Smart Array P812 Controller)

[http://h18000.www1.hp.com/products/quickspecs/13200\\_na/13200\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13200_na/13200_na.html)  
(Smart Array Advanced Pack)

### SAS HBA

HP SC08Ge 2-ports Ext PCIe x8 SAS Host Bus Adapter 488765-B21

HP Modular Smart Array SC08e 2-ports Ext PCIe x8 SAS Host Bus Adapter 614988-B21

**NOTE:** This is a 2 x4 External Port HBA

**NOTE:** This is only approved for the HP StorageWorks P2000 G3 SAS Modular Smart Array.

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:

[http://h18004.www1.hp.com/products/quickspecs/13082\\_na/13082\\_na.html](http://h18004.www1.hp.com/products/quickspecs/13082_na/13082_na.html)  
(SC08Ge HBA)

[http://h18004.www1.hp.com/products/quickspecs/13651\\_na/13651\\_na.html](http://h18004.www1.hp.com/products/quickspecs/13651_na/13651_na.html)  
(SC08e 6Gb HBA)





## Additional Options

### HP Tape Backup

**NOTE:** For the complete range of StorageWorks tape drives, autoloaders, libraries and media see: <http://www.hp.com/go/tape>. For hardware and software compatibility of HP StorageWorks tape backup products see: <http://www.hp.com/go/connect>.

HP StorageWorks DAT 320 USB Tape Drive in 1U USB Rack Kit AP835A

HP StorageWorks DAT 320 SAS Internal Tape Drive AJ830A

**NOTE:** For installation into 1U SAS rack kit (AE459B) or 3U SAS rack kit (AG576B). No peripheral bay available for installation into the server. Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.

HP StorageWorks LTO-3 Ultrium 920 SAS Internal Tape Drive EH847A

**NOTE:** For installation into 1U SAS rack kit (AE459B) or 3U SAS rack kit (AG576B). No peripheral bay available for installation into the server. Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.

HP StorageWorks LTO-4 Ultrium 1760 Internal Tape Drive EH919A

**NOTE:** For installation into 1U SAS rack kit (AE459B) or 3U SAS rack kit (AG576B). No peripheral bay available for installation into the server. Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.

HP StorageWorks LTO-4 Ultrium 1840 Internal Tape Drive EH860A

**NOTE:** For installation into 3U SAS rack kit (AG576B). No peripheral bay available for installation into the server. Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.

HP StorageWorks LTO-5 Ultrium 3280 Internal Tape Drive EH899A

**NOTE:** For installation into 3U SAS rack kit (AG576B). No peripheral bay available for installation into the server. Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.

HP StorageWorks 1/8 G2 LTO-5 Ultrium 3000 SAS Tape Autoloader BL536A

**NOTE:** Requires HP 1U Tape Autoloader Rack Kit (AH166A) for rack installation. Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.

HP StorageWorks MSL2024 Tape Library with one LTO-5 Ultrium 3000 SAS Drive BL537A

**NOTE:** Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.

HP StorageWorks MSL4048 Tape Library with one LTO-4 Ultrium 3000 SAS Drive BL538A

**NOTE:** Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.

HP StorageWorks MSL8096 Tape Library with one LTO-5 Ultrium 3000 SAS Drive BL539A

**NOTE:** Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.



## Additional Options

### HP Disk Backup

**NOTE:** For the complete range of StorageWorks D2D Backup Systems see: <http://www.hp.com/go/d2d>. For the complete range of StorageWorks RDX drives and media see: <http://www.hp.com/go/rdx>. For hardware and software compatibility of HP StorageWorks disk backup products see: <http://www.hp.com/go/connect>.

#### HP StorageWorks D2D Backup Systems with Backup Data Deduplication

HP StorageWorks D2D2504i Backup System

EJ002B

**NOTE:** 3.0TB of useable network disk backup capacity. Network connected appliance with connectivity using the iSCSI protocol. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.

HP StorageWorks D2D4009i Backup System

EH939A

**NOTE:** 7.5TB of useable network disk backup capacity. Network connected appliance with connectivity using the iSCSI protocol. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.

HP StorageWorks D2D4112fc Backup System

EH993B

**NOTE:** 9.0TB (expandable to 18.0TB) of useable network disk backup capacity. Fibre Channel SAN connected appliance. Direct server attach is not supported, requires connection via SAN fabric.

#### HP StorageWorks RDX Removable Disk Backup Systems USB

HP StorageWorks RDX500 Internal Removable Disk Backup System

AJ934A

**NOTE:** For installation into 1U USB Rack-Mount Kit (A8007A). No peripheral bay available for drive installation into the server. 500GB of disk capacity per data cartridge.

HP StorageWorks RDX750 Internal Removable Disk Backup System

AW577A

**NOTE:** For installation into 1U USB Rack-Mount Kit (A8007A). No peripheral bay available for drive installation into the server. 750GB of disk capacity per data cartridge.

### HP StorageWorks Options

#### StorageWorks Fibre Channel HBA

**NOTE:** The following is a list of all Fibre Channel Host Bus Adapters for Windows and Linux. For detailed compatibility information please see: <http://h18006.www1.hp.com/storage/saninfrastructure/hba.html>

#### Emulex Fibre Channel HBAs

HP StorageWorks 81E PCI-e FC HBA Single Port

AJ762A

HP StorageWorks 82E PCI-e FC HBA Dual Port

AJ763A

HP StorageWorks FC2142 4Gb PCI-e HBA

A8002A

HP StorageWorks FC2242 Dual Channel 4Gb PCI-e HBA

A8003A

#### QLogic Fibre Channel HBAs

HP StorageWorks 81Q PCI-e FC HBA Single Port

AK344A

HP StorageWorks 82Q PCI-e FC HBA Dual Port

AJ764A

HP StorageWorks FC1142 4Gb PCI-e HBA

AE311A

HP StorageWorks FC1242 Dual Channel 4Gb PCI-e HBA

AE312A

#### StorageWorks SCSI HBA

HP U320e SCSI Host Bus Adapter

AH627A

**NOTE:** Recommended HBA for MSL SCSI Tape Library connect.

#### StorageWorks Converged Network Adapter



### Additional Options

HP CN1000E 2P Converged Network Adapter

AW520A

**NOTE:** There is a maximum of two CN1000E 2P Converged Network Adapters allowed in this server.

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#### HP Disk Storage Systems MSA SAN Storage Arrays

HP StorageWorks 50 Modular Smart Array

364430-B21

**NOTE:** Please see the QuickSpecs for additional options and configuration information at:

[http://h18000.www1.hp.com/products/quickspecs/12245\\_na/12245\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12245_na/12245_na.html)

#### Disk Enclosures

HP StorageWorks D2600 Disk Enclosure

AJ940A

HP StorageWorks D2700 Disk Enclosure

AJ941A

**NOTE:** Please see the QuickSpecs for additional options and configuration information at:

[http://h18000.www1.hp.com/products/quickspecs/13404\\_na/13404\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13404_na/13404_na.html)

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#### HP Uninterruptible Power Systems HP Rack-Mountable R5500 UPS

HP R5500 VA UPS

AF426A

**NOTE:** Please see the QuickSpecs for additional information:

[http://h18000.www1.hp.com/products/quickspecs/11871\\_na/11871\\_na.html](http://h18000.www1.hp.com/products/quickspecs/11871_na/11871_na.html)

#### HP R/T3000 Uninterruptible Power System (UPS)

HP R/T3000 UPS, High voltage

AF453A

**NOTE:** Please see the QuickSpecs for additional information:

[http://h18000.www1.hp.com/products/quickspecs/13417\\_na/13417\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13417_na/13417_na.html)

**NOTE:** For additional information on HP Uninterruptible Power Systems please go to: [www.hp.com/servers/rackups](http://www.hp.com/servers/rackups).

**NOTE:** For additional information on sizing your server, please reference: <http://www.upssizer.com>.

**NOTE:** Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link: [www.hp.com/products/powercords](http://www.hp.com/products/powercords).



## Additional Options

HP Power Distribution Unit	<b>HP Monitored Power Distribution Unit: Half Rack Version</b>	
	HP 4.9 kVA S124 Monitored PDU- single input, 1Ø, 24A	AF914A
	<b>HP Monitored Power Distribution Unit: Full Rack Version</b>	
	HP 8.6 kVA S1324 Monitored PDU- single input, 3Ø, 24A	AF504A
	HP 8.3 S1140 Monitored PDU- single input, 1Ø, 40A	AF506A
	<b>NOTE:</b> Please see the following QuickSpecs for additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/12118_na/12118_na.html">http://h18000.www1.hp.com/products/quickspecs/12118_na/12118_na.html</a>	
	<b>Modular Power Distribution Units 1U/0U (Up to 32 outlets)</b>	
	<b>NOTE:</b> 1U/0U mounting brackets shipped with the unit (optimized for 10000 and 9000 series racks).	
	HP Modular Power Distribution Units (mPDU), High Volt Model, 24A (200-240 VAC)	252663-D72
	8.3kVA Model - mPDU, 40A, High (power cord attached)	252663-D73
	HP Modular Power Distribution Units (mPDU), High Volt Model, 16A (200-240 VAC)	252663-B24
	<b>NOTE:</b> This PDU has a detachable input power cord and allows for adaptability to power requirements.	
	<b>NOTE:</b> Please see the following QuickSpecs for additional options including shorter jumper cables and specific power cords: <a href="http://h18000.www1.hp.com/products/quickspecs/11041_na/11041_na.html">http://h18000.www1.hp.com/products/quickspecs/11041_na/11041_na.html</a>	
	<b>NOTE:</b> For additional information on HP Power Distribution Units including accessories please go to: <a href="http://www.hp.com/go/pdu">www.hp.com/go/pdu</a> .	
	<b>NOTE:</b> Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link: <a href="http://www.hp.com/products/powercords">www.hp.com/products/powercords</a> .	

HP Rack Series	<b>HP Rack 10000 G2 Series (Carbon/Graphite Metallic)</b>	
	10642 G2 (42U) Rack Cabinet - Pallet	AF001A
	10642 G2 (42U) Rack Cabinet - Shock Pallet	AF002A
	10647 G2 (47U) Rack Cabinet - Pallet	AF031A
	10647 G2 (47U) Rack Cabinet 1200mm Deep - Shock Pallet	AF044A
	<b>NOTE:</b> Due to handling and shipping requirements, AF044A is only orderable through HP Factory Express. It is not for direct sales. Customer site surveys are required before an order is approved. CTO orders may require additional lead time.	
	<b>NOTE:</b> It is mandatory to use a shock pallet when shipping racks with equipment installed.	
	<b>NOTE:</b> Please see the Rack 10000 G2 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: <a href="http://h18000.www1.hp.com/products/quickspecs/12402_na/12402_na.html">http://h18000.www1.hp.com/products/quickspecs/12402_na/12402_na.html</a>	
	<b>NOTE:</b> For additional information regarding Rack Cabinets, please see the following URL: <a href="http://www.hp.com/go/rackandpower">http://www.hp.com/go/rackandpower</a> .	
	<b>NOTE:</b> The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 G2 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors.	
	<b>CAUTION:</b> If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment: Front and rear	



### Additional Options

doors: If your 42U server rack includes closing front and rear doors, you must allow 830 square inches (5,350 sq cm) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation). Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 2.75 inches (7 cm).

**CAUTION:** Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.

**NOTE:** For additional information, refer to the Setup and Installation Guide or the Documentation CD provided with the server, or to the server documentation located in the Support section at the following URL: [www.hp.com/servers/dl360](http://www.hp.com/servers/dl360).

Quick deploy rail system provides tool-free support for racks with square or round mounting holes (including Compaq/HP 7000, 9000, 10000 G2 and HP series), with an adjustment range of 24" - 36". The ambidextrous cable management arm can be mounted on either the left or right side for improved cable management.

#### HP Rack Options

#### HP KVM Switch Options

2x1Ex16 IP Console SwitchG2 with Virtual Media	AF621A
4x1Ex32 IP Console SwitchG2 with Virtual Media	AF622A
2x16 Server Console Switch G2 with Virtual Media	AF618A
2x32 Server Console Switch G2 with Virtual Media	AF619A
PS/2 Virtual Media Interface Adapter, 1 pack	AF604A
<b>NOTE:</b> Requires PS/2 and one USB port on server.	
Server console switch 0x2x8	AF616A
Server console switch 0x2x16	AF617A
PS/2 Interface Adapter, 1 pack	262588-B21
PS/2 Interface Adapter, 8 pack	262587-B21
<b>NOTE:</b> Cat5e cables are required to connect Interface Adapters to Console Switches. Cat5e cables can be found at the following URL: <a href="http://www.hp.com/go/kvm">http://www.hp.com/go/kvm</a> .	
HP 1x4 Console Switch	AF611A
PS2 Server Console Cable, 6 ft, 2 pack	AF612A

#### HP USB and SD Options

HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
HP USB 04 Standard Keyboard	DT528A#ABA
HP 4GB SD Flash Media Kit	580387-B21
<b>NOTE:</b> Blank SD media device is supported for use with VMware. SD media must be installed in the internal slot of the ProLiant server. Learn more at: <a href="http://www.hp.com/go/proliantvirtualization">http://www.hp.com/go/proliantvirtualization</a> .	
HP 2GB USB Flash Media Drive Key	608447-B21
<b>NOTE:</b> HP qualified blank USB key for use with HP ProLiant servers that support the VMware virtualization environment and other HP value-add software like SmartStart. HP recommends this industry standard USB flash device for use with VMware ESXi. USB device must be installed in the internal slot of the ProLiant server for use with VMware ESXi. Refer to <a href="#">HP VMware Getting Started Guide</a> for installation instructions.	



## Additional Options

### HP Care Pack Services

#### Hardware Services On-site Service

4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic UV301E

4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic UV298E

#### **6-Hour Call to Repair, On-site Service 7-Day x 24-Hour Coverage, 3 Years**

6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic UV292E

#### Installation & Start-up Services

Hardware Installation, Electronic UV304E

Installation & Start-Up of a ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays, Electronic U4618E

Installation and Startup for Essentials Rapid Deployment Pack, Electronic U5683E

#### Support Plus 24

Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic UX131E

Onsite HW support 24x7, 4hr response and RedHat AS O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic UX132E

Onsite HW support 24x7, 4hr response and SuSE O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic UX133E

**NOTE:** For more information, customer/resellers can contact:

<http://www.hp.com/services/carepack>



### Memory

**NOTE:** Memory configurations listed do not apply to "Factory Integrated Models".

#### HP ProLiant DL980 G7 Models

#### Memory Subsystem Architecture

Intel Xeon 7500 and 6500 series memory architecture is designed to take advantage of multiple stages of memory interleaving to reduce latency and increase bandwidth.

Each Intel Xeon 7500 and 6500 series processor contains two Memory Controllers as shown in the Processor/Memory interconnect figure below. Each Memory controller has two Scalable Memory Interface (SMI) buses operating in lockstep where each SMI bus connects to a memory buffer. The purpose of the buffer is to convert SMI to DDR3. Each buffer has two DDR3 channels and can support up to four DIMMs for a total of eight DIMMs per cartridge.

- The number of DIMMs or ranks does not affect memory frequency, but can affect memory bandwidth and performance. All DIMMs will run at the highest possible frequency for a given processor.
- DDR3 memory speed is a function of the processors QPI bus speed such that
  - Processors with a QPI speed of 6.4GT will run memory at 1066MHz
  - Processors with a QPI speed of 4.8GT will run memory at 800 MHz

#### DIMM Installation guidelines

Each memory cartridge can support up to 8 DIMMs, for a system total of 128 DIMMs. When installing DIMM modules in the Memory Cartridge observe the following minimum guidelines:

- UDIMMs are not supported
- Minimum allowable configuration is one Quad (two DIMMs on each of the two cartridges connected to processor one).
- DIMMs must be installed as Quads (four DIMMs with identical characteristics). For configuration simplicity HP recommends using identical part numbered DIMMs throughout when possible.
- DIMM Quads MUST be populated in sequence by letter designation. Install DIMMs 1A and 8A on each cartridge first, followed by DIMMs 3B and 6B on each cartridge, then DIMMs 2C and 7C, and finally DIMMs 4D and 5D last.
- Maximum performance is achieved by balancing DIMM Quads by letter groupings across all memory cartridges. All 1A and 8A DIMMs should be installed (preferably with the same size DIMMs in all memory cartridges across the entire system) first, followed by the B DIMMs, C DIMMs and D DIMMs.

AMP modes Online Sparing and Memory Mirroring have further requirements beyond these listed here. Please refer to the user guide for additional memory configuration requirements.

#### Memory Cartridge population guidelines

This server contains 8 memory cartridge slots within each processor memory drawer. Observe the following guidelines:

- A memory cartridge must be installed in each slot.
- To maximize performance distribute the total memory capacity evenly between all memory cartridges.
- When operating the system in 40-bit address mode and installing 64x 16GB DIMMs (1TB total memory), the 64 DIMMs must be spread evenly across all 16 memory cartridges, or some of the memory will not be recognized.
- Memory configurations larger than 1TB require the use of 44-bit addressing mode.

#### Hemisphere mode

The Xeon EX architecture incorporates hemisphere mode, a high performance interleaving technology. Hemisphere mode allows interleaving between the two processor memory controllers internal to each processor.

The DL980 G7 always uses Hemisphere mode. This requires that for each processor, the two memory cartridges attached to the processor have matching memory configurations. If the two memory configurations are not equal, the DL980 G7 will ignore (waste) the extra memory in the larger configuration.



Memory

Memory Performance Optimization

The DL980 G7 supports 128 DIMMs across eight multi-core processors. While there are many DIMM population configurations that can support any desired total memory size, optimal performance can only be achieved when DIMMs are populated to take advantage of the Xeon EX architecture. The largest contributor to performance is to populate each DDR3 channel in each memory cartridge. To achieve this, the minimum DIMM count per cartridge is four. Maximum bandwidth is reached by fully populating all memory cartridges with the maximum number of eight DIMMs per cartridge.

- The more ranks per DIMM the higher the performance, so Quad rank DIMMs perform better than dual rank DIMMs.
- Performance is best when the installed DIMMs are all of equal size.

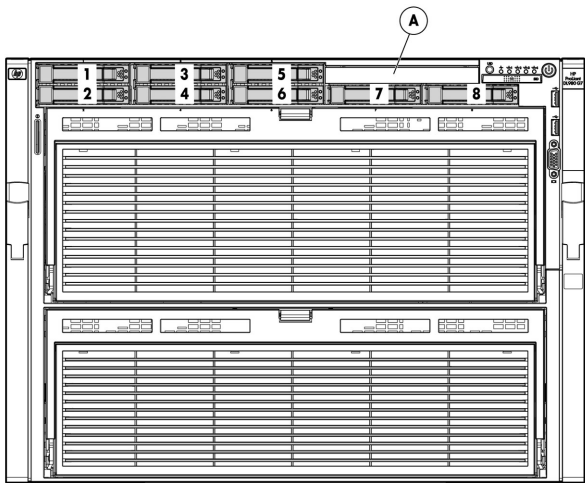
**NOTE:** Memory configurations listed do not apply to "Factory Integrated Models". Only registered (RDIMM) speeds of 1066 or 1333 running at 1066 are supported. UDIMMs are not supported.

The following memory options are available from HP:

HP Memory	Registered DIMMs (RDIMMs)	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
	HP DL580G7 Memory Board	588141-B21



Storage



A    DVD drive bay

1-8    SFF SAS internal drive cage

Drive Support

	Quantity Supported	Position Supported	Controller
<b>Removable Media</b>			
HP Slimline DVD Optical drive	1	A	Integrated SATA
HP Slim SATA DVD RW Optical Drive	1	A	Integrated SATA

Hard Drives

**NOTE:** The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

**NOTE:** Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
300GB 6G SAS 10K DP	Up to 8	1-8	HP Smart Array P410i (standard on server)
146GB 6G SAS 15K DP			HP Smart Array P812/1GB FBWC Controller
72GB 6G SAS 15K DP			



## Storage

### External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
D2600 Disk Enclosure	Up to 4	External	HP Smart Array P212/ 256 MB Controller
	Up to 8	External	HP Smart Array P411/256 MB Controller
			HP Smart Array P411/512 MB BBWC Controller
			HP Smart Array P411/1G FBWC Controller
			HP Smart Array P812 Controller
D2700 Disk Enclosure	Up to 2	External	HP Smart Array P212/256 MB Controller
	Up to 4	External	HP Smart Array P411/256 MB Controller
			HP Smart Array P411/512 MB BBWC Controller
			HP Smart Array P411/1G FBWC Controller
			HP Smart Array P812 Controller

### Maximum Storage Capacity - (External SAS Enclosure Attached)

Internal	2.4.0TB (8 x 300GB SFF SAS Drives)
External	960TB (80 MSA60 enclosures x 12 drive bays each x 1TB SATA Drives)

### Tape and Disk-Based Backup

**NOTE:** For the complete range of StorageWorks tape drives, autoloaders, libraries and media, including the internal fitting models, see: <http://www.hp.com/go/tape>. For the complete range of StorageWorks D2D Backup Systems see: <http://www.hp.com/go/d2d>. For the complete range of StorageWorks RDX drives and media see: <http://www.hp.com/go/rdx>. For hardware and software compatibility of HP StorageWorks disk and tape backup products see: <http://www.hp.com/go/connect>.

	Position Supported	Controller	Controller Part Number
<b>HP StorageWorks USB Tape Drives</b>	External	USB 2.0 Port	N/A
DAT 40			
DAT 72			
DAT 160			
DAT 320			
1U USB Rack-Mount Kit			
<b>HP StorageWorks SAS Tape Drives</b>	External	HP Smart Array P212/ZM 1-ports Int/1-ports Ext PCIe x8 SAS Controller	462828-B21
DAT 160			
DAT 320			
LTO-2 Ultrium 448			
LTO-3 Ultrium 920			
LTO-4 Ultrium 1760			
LTO-4 Ultrium 1840			
LTO-5 Ultrium 3000			
LTO-5 Ultrium 3280			
1U Rack-Mount Kit			
3U Rack-Mount Kit			



### Storage

<b>HP StorageWorks SCSI Tape Libraries</b> MSL2024 MSL4048 MSL8096 MSL6000	External	HP U320e SCSI Dual Channel Controller Please check the full compatibility information at: <a href="http://www.hp.com/go/connect">http://www.hp.com/go/connect</a>	AH627A
<b>HP StorageWorks SAS Tape Autoloaders and Libraries</b> 1/8 G2 Autoloader MSL2024 MSL4048 MSL8096	External	HP Smart Array P212/ZM 1-ports Int/1-ports Ext PCIe x8 SAS Controller	462828-B21
<b>HP StorageWorks USB RDX Removable Disk Backup System</b> RDX160 RDX320 RDX500 RDX750	External	USB 2.0 port	N/A
<b>HP StorageWorks D2D Backup Systems, iSCSI</b> D2D2500i D2D4000i	External	Embedded Network Controller. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	
<b>HP StorageWorks D2D Backup Systems, Fibre Channel</b> D2D4000fc	External	Direct server attach is not supported, requires connection via SAN fabric. See: <a href="http://www.hp.com/go/connect">http://www.hp.com/go/connect</a>	



## Power Specifications

HP 1200W Common Slot High Efficiency Power Supply Kit					
Part Number	578322-B21				
Input Voltage Range ( V rms )	200 to 240				
Frequency Range (Nominal) ( Hz )	50/60				
Nominal Input Voltage ( Vrms )	200	208	220	230	240
Maximum Rated Output Wattage Rating	1200	1200	1200	1200	1200
Nominal Input Current ( A rms )	6.7	6.5	6.1	5.8	5.6
Maximum Rated Input Wattage Rating ( Watts )	1290	1290	1290	1290	1290
Maximum Rated VA ( Volt-Amp )	1345	1345	1345	1345	1345
Efficiency ( % )	93	93	93	93	93
Power Factor	0.97				
Leakage Current ( mA )	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current ( A peak )	30				
Maximum Inrush Current duration ( mS )	10				
Maximum British Thermal Unit Rating ( BTU-Hr )	4403	4403	4403	4403	4403

To review typical system power ratings use the HP Power Advisor which is available via the online tool located at URL:  
[www.hp.com/go/proliant-energy-efficient](http://www.hp.com/go/proliant-energy-efficient) or [www.hp.com/go/hppoweradvisor](http://www.hp.com/go/hppoweradvisor)



### Technical Specifications

System Unit Rack	<b>Dimensions</b> (H x W x D) (with bezel and XNC cables installed)	13.92 x 19.0 x 34.5 in (35.36 x 48.26 x 87.63 cm)		
	<b>Weight</b> (approximate)	Maximum (all hard drives, power supplies, and processors installed)	205 lb (93 kg)	
		Minimum (one hard drive, power supply, and processor installed)	165 lb (75 kg)	
	<b>Input Requirements</b> (per power supply)	Rated Line Voltage	200 - 240 VAC	
		Rated Input Current	6.6A @ 200-240VAC	
		Rated Input Frequency	50 - 60 Hz +/- 3hz	
		Rated Input Power	1375W @ 200-240VAC	
	<b>BTU Rating</b>	Maximum	14,330 BTU/hr (worst case configuration and utilization)	
	<b>Power Specifications</b>	Maximum	4200 W (worst case configuration and utilization)	
	<b>NOTE:</b> To review typical system power ratings use the HP Power Advisor which is available online located at url: <a href="http://www.hp.com/go/proliant-energy-efficient">www.hp.com/go/proliant-energy-efficient</a> or <a href="http://www.hp.com/go/hppoweradvisor">www.hp.com/go/hppoweradvisor</a>			
	- Click on the system of interest. Example: DL980 G7 - Follow the instructions of the next screens.			
	<b>Power Supply Output</b> (per power supply)	Rated Steady-State Power	1200W @ 200 - 240VAC	
Maximum Peak Power		1440W @ 200 - 240VAC		
<b>System Inlet Temperature</b>	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).		
	Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).		
<b>Relative Humidity</b> (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non- condensing.		
	Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non- condensing.		
<b>Altitude</b>	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed.		



Technical Specifications

			Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Non-operating		9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
Acoustic Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).		
	Idle		
	L WAd		7.5 Bels
	L pAm		59.7 dB
	Operating		
	L WAd		7.5 Bels
	L pAm		59.7 dB
Emissions Classification (EMC)	FCC Rating		Class A
	Normative Standards		CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1
<b>NOTE:</b> Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.			

HP Slim SATA DVD RW Optical Drive	Shipping Dimensions	3.97 x 7.81 x 10.75 in (10.08 x 19.84 x 27.31 cm)	
	Shipping Weight	5 lb (2.27 kg)	
	Disk	Applicable Disk	DVD-ROM
			DVD-R (Read Only)
			DVD-R DL
			DVD-RW
			DVD+R
			DVD+R DL
			DVD+RW
			DVD RAM
			CD-ROM XA
			CD-ROM Mode-1 data disc
			CD-ROM Mode-2 data disc
			CD Audio disc
			CD-Extra
			CD-RW
			CD-R
			Photo CD

### Technical Specifications

		CD-I		
		CD-DA		
	Capacity	DVD-ROM	DVD-SL	4.7 GB/side
			DVD-DL	8.5 GB/side
			Double Sided	9.40 GB/side
		DVD +/-R		4.7 GB/side
		DVD +/-RW		4.7 GB/side
		DVD-RAM		5.2 GB/side
		CD-ROM	Mode-1	650 MB (550 MB)
			Mode-2	742 MB (640 MB)
	Block Size	DVD		2,048 bytes
		CD		2,352 (Mode-0)
				2352, 2340, 2336, 2048 bytes (Mode-1)
				2352, 2340, 2336, 2048 bytes (Mode-2)
	Diameter	120 mm (4.7 in), 80 mm (3.1 in) (with adapter at vertical mounting mode)		
Loading Mechanism	Tray type Manual Load			
Interface	SATA 1.5			
Access Times (typical)	Random	DVD-ROM < 120 ms, CD-ROM < 110 ms		
	Full-Stroke	DVD-ROM < 250 ms, CD-ROM < 210 ms		
Data Transfer Rate (sustained)	DVD-ROM	Single Layer	10.8 MB/sec. Max.	
	CD-ROM	3.6 MB/sec. Max.		
Cache Buffer	2 MB			
Spin-up Time (typical)	less than 15 seconds			
MTBF	60,000 Power On Hours (POH)			
Ambient Temperature	Operating	-41° to 122° F (5° to 50° C)		
	Storage/Transportation	-401° to 140° F (-30° to 60° C)		
Dimensions	(HxWxD, maximum)	0.5 x 5.2 x 5.45 in (12.7 x 132 x 138 mm)		
Option Kit Contents	DVD-RW drive with installation guide, warranty card, registration card			



## Technical Specifications

Integrated Lights-Out 3 Standard (integrated on system board)	Architecture	PCI Express based health and remote management ASIC
	Processor	PCI Express RISC processor core running at 250MHz
	Upgradeability	Option firmware upgradeable via flash ROM
	Video Support	1600 x 1200 DVR max resolution
	Interfaces	One Ethernet Sideband connection (10/100/1000 Mb/s)
		One Ethernet network connection (10/100 Mb/s)
	Memory	128-MB DDR with ECC
	Operating System Support	Microsoft Windows Server 2008 R2 Enterprise Edition (64 bit)
		Microsoft Windows Server 2008 Enterprise Edition (64 bit)
		Red Hat Enterprise Linux 5.5 (64 bit)
		SUSE LINUX Enterprise Server 11 (64 bit)
		SUSE LINUX Enterprise Server 10 (64 bit)
Client System Support		VMware ESX 4.1
		Microsoft Windows 7
		Microsoft Windows XP Professional Edition
		Microsoft Windows Vista Business and Ultimate Editions
		Red Hat Enterprise Desktop 5.00
Client Browser Support		SUSE Linux Enterprise Desktop 11
		SUSE Linux Enterprise Desktop 10
		Microsoft Internet Explorer 8
		Microsoft Internet Explorer 7
		Microsoft Internet Explorer 6
Command Line Support		Firefox 3.5 (on supported Windows and Linux systems)
		Firefox 3.0 (on supported Windows and Linux systems)
		Secure Shell and serial port access
		Secure Socket Layer
		Secure Shell version 2
Security		Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser, CLP and XML scripting interface
		AES encryption of video
		RC4 encryption of video
Directory Support Services		Active Directory v1.0 (Windows 2003)
Driver Support		HP ProLiant iLO 3 Management Controller Driver
Management protocols supported		SNMP, IPMI 2.0 (system and LAN interface), DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP), HP RIBCL XML





### Technical Specifications

Smart Array P410i Controller	Disk Drive and Enclosure Interface	6Gb/s SAS (Serial Attached SCSI)	
	SAS Connectors	2 internal (mini SAS) x8 wide port connectors	
	Cache Memory Speed	DDR2-800MHz with 40 or 72-bit wide bus provides up to 4.2GB/s maximum bandwidth	
	Server Interface	x8 5G PCIe 2.0 provides 4GB/s maximum bandwidth.	
	SAS Speed	x8 6G SAS provides 4.8GB/s maximum bandwidth.	
	Cache Memory	72-bit 512MB or 1GB Flash backed write cache transportable with flash upgrade.	
	Logical Drives Supported	Up to 64 logical drives	
	Maximum Logical Drive Capacity	Greater than 2TB	
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space	
	RAID Support	RAID 6, 6+0 (Advanced Data Guarding) <b>NOTE:</b> RAID 6, 6+0 can be enabled with either: <ul style="list-style-type: none"> <li>Minimum of 512MB FBWC and Smart Array Advanced Pack License Key option upgrades</li> </ul> RAID 5, 5+0 (Distributed Data Guarding) <b>NOTE:</b> A minimum of 512MB FBWC is required to enable RAID 5, 5+0 support of the Smart Array P410i RAID 1+0 (Striping & Mirroring) RAID 0 (Striping)	
HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter	Network Interface Compatibility	10Base-T/100Base-TX/1000Base-TX	
		IEEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 802.3u 100Base-TX	
		IEEE 802.3ad 1000Base-TX	
		IEEE 802.1p 100Base-TX	
		IEEE 802.1q 100Base-TX	
	Data Transfer Method	PCI-Express (x4)	
	Controller	Qlogic/NetXen NX3031	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
		1000Base-TX (Half and Full-Duplex)	2000 Mb/s
	Connector	RJ-45	
	Cable Support	10Base-T	Categories 3, 4, or 5 UTP; up to 328 ft (100 m)
		100Base-TX	Category 5 or higher UTP; up to 328 ft (100 m)
		1000Base-TX	Category 5 or higher UTP; up to 328 ft (100 m)



### Technical Specifications

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#### Environment-friendly Products and Approach

#### End-of-life Management and Recycling

Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: <http://www.hp.com/go/green>. To recycle your product, please go to: <http://www.hp.com/go/green> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <http://www.hp.com/go/green>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.

